



“A peek into the research lab”

AI-enabled technologies for CBRN-Analysis

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Before we start:

A note on AI and its deployment

- When many think of “AI” today, they think of foundation Large Language Models (LLMs)
 - OpenAI ChatGPT, Google Gemini, Microsoft Copilot, Anthropic Claude, etc...
- These typically require either internet access or a large private deployment
 - Not always compatible with secure data environments!
- At Riskaware, we specialise in **usable AI/ML** for Defence
 - Targeted models that do one thing well
- This means we can add these capabilities **without** needing huge additional resource requirements – or the internet

This session aims to start a discussion on how AI can add value to CBRN warning and reporting

Cross-domain innovation

Modelling and simulation

Modelling the world to understand, prepare for and respond to threats

- Mathematical and physical modelling
- Transport and dispersion
- Health effects
- Cyber



Edge AI

Using advanced machine learning techniques to solve real problems

- Accessible
- Explainable
- Performant



Data analysis and visualisation

Making sense of complex datasets to extract actionable insight

- Data collection
- Visual analytics



Bringing AI to CBRN-Analysis

What is your perspective on AI?

- Creativity
- Increasing speed of operations – sending messages
- New ways to interact with systems
- Help you multitask
- Understand information
- Help with training – especially for Reachback
- Sensor integration – improvement, situational awareness
- Hallucinations/being incorrect
- High compute requirements
- Security concerns
 - Especially Agentic AI
- AI makes suggestions, operator makes the decisions
- Deployment issues – can it work on a SECRET network?
- Explainability – why has the AI come to that decision?

Using CBRN-Analysis in a new way



AI (and other) technology can enable CBRN-Analysis to be used in different ways. What could this mean?

- Mobile devices (TAK, ...)
- Voice control – hands free sending of messages
- Synthetic data creation (exercises, training)
- Package briefing material with relevant data automatically
- Prioritise tasks, risks, map layers with most important/critical information



Some concepts

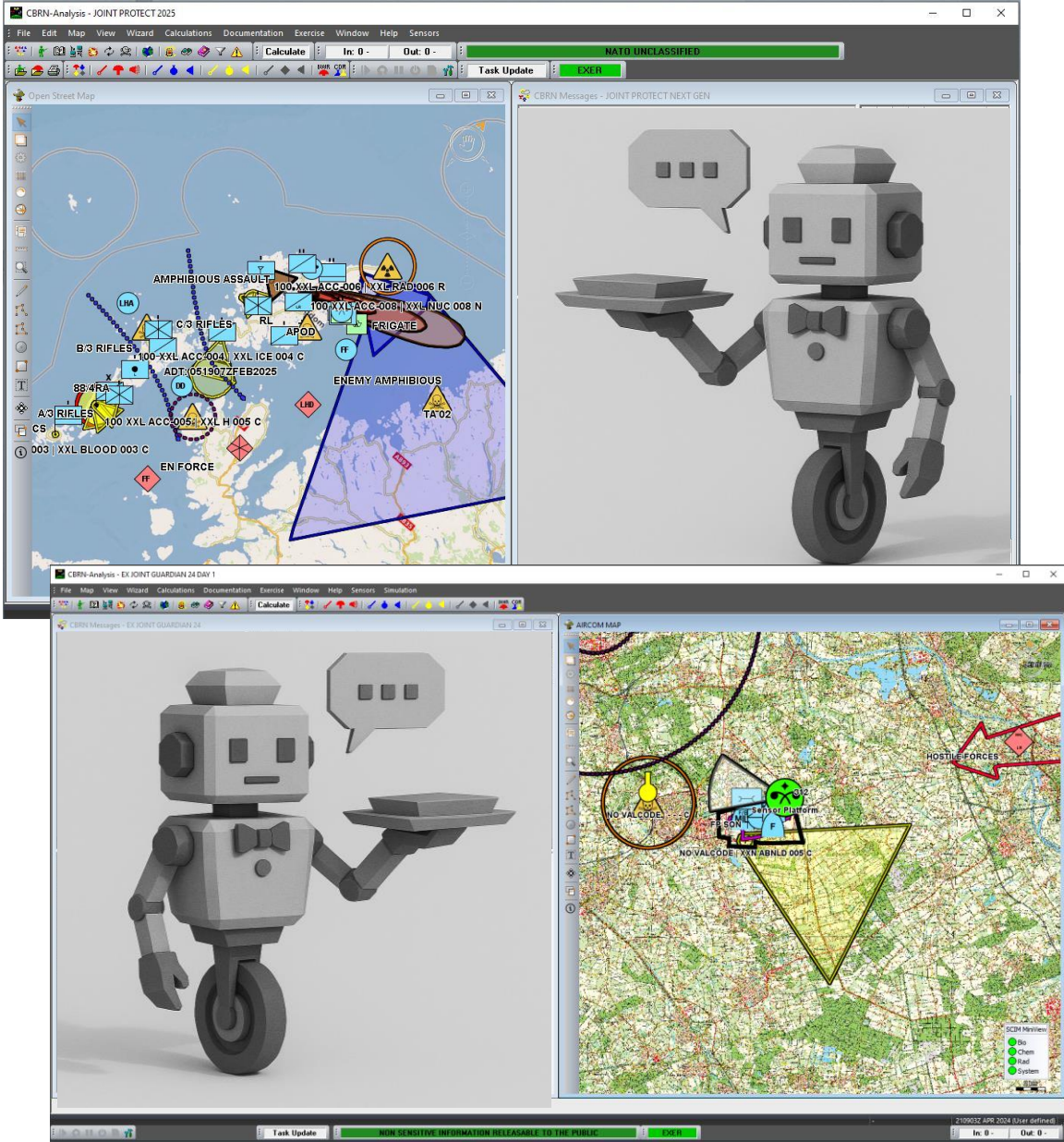


Voice interface

- Communicate with CBRN-Analysis using your voice
 - And your language
- Built on Riskaware research into converting natural language to precise machine commands



- Chatbot type assistant for CBRN-Analysis
- Help non-experts, less frequent users to use the software
 - "What am I looking at?"
 - "What does this CBRN message mean?"
 - "How do I...?"
- Intelligent search





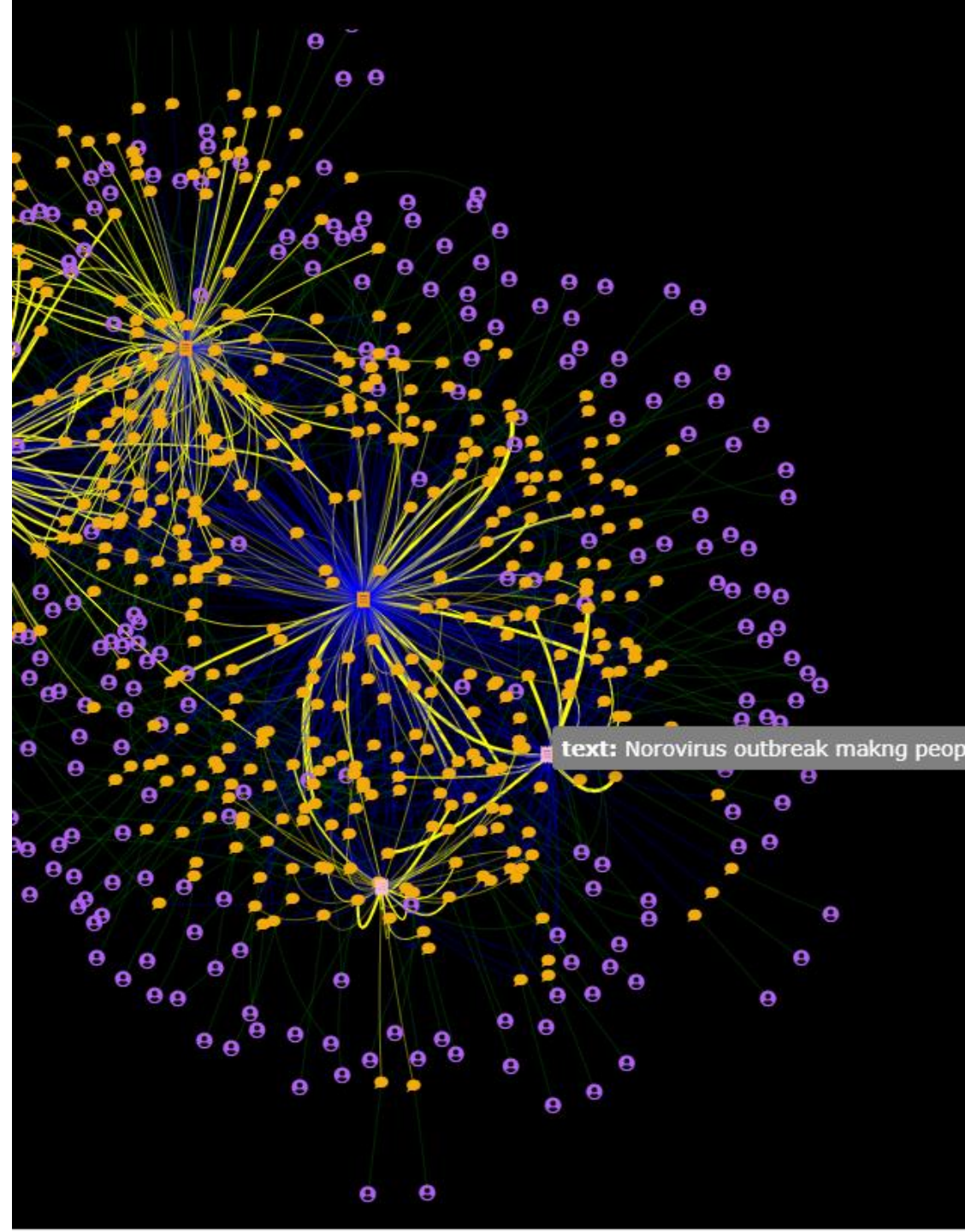
Exercise creator

- Use generative AI to speed up the creation of exercise scenarios and injects
- AI “players” in TTX
- Use in conjunction with modelling to simulate elements of an exercise
 - Focus on specific elements of training



Sub-threshold threat analysis

- Riskaware's HAITTON capability
- Early (potential) threat identification and warning
- Analyse social media/chat for emerging narratives
- Explore who, how, what is driving the discussion
- Originally developed for countering sub-threshold warfare (disinformation), has many other uses





Any others?

- Differentiate between simulant and real detections
- Automatic unit creator!
- Identify and find patterns in input data – suggest/limit selections based on what has gone before
- Advice to commander
- Selection of correct model for situation

